Performance Work Statement (PWS)

For

Blossom Point Satellite Command and Control Facility

12 April 2013

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Blossom Point Satellite Command and Control

1 Introduction

1.1 Mission

The Naval Research Laboratory's Blossom Point Tracking Facility (BPFT) mission is to provide the command, control, data collection and mission management necessary to enable cradle to grave management of space/air vehicles and their payload operations across the frequency spectrum.

1.2 Background

The Naval Center for Space Technology (NCST), an organization within the U.S. Naval Research Laboratory (NRL) in Washington, DC, is the designated lead for Navy Space Programs. NCST has the mission to preserve and enhance a strong space technology base and provide expert capabilities in the development and acquisition of space, aerospace and Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) systems which support Naval Missions.

In support of this mission, the Space Systems Development Department (SSDD), a department within NCST, has the primary responsibility to develop space, aerospace and C4ISR systems, and to evolve the emerging technologies that advance the capabilities of these systems to perform science and operational missions.

BPTF provides support to satellites on Low Earth Orbit (LEO), Highly Elliptical earth Orbit (HEO), Geosynchronous Earth Orbit (GEO), as well as Molniya Earth Orbiting (MEO) satellites. BPTF provides flight operations and level zero mission data processing for all satellites of interest. BPTF facility consists of ground stations, an operations center and an infrastructure fully capable of successfully completing NRL missions.

BPTF's Telemetry, Tracking, and Command (TT&C) capabilities allow world-wide coverage through connectivity to various ground station networks including the Air Force Satellite Control Network (AFSCN), local and remote assets on NRL property as well as other government properties. With its adaptable and scalable hardware and software architectures, the BPTF provides affordable solutions to spacecraft launch services through the application of state-of-the-industry software and hardware.

The BPTF's capability includes but is not limited to Command and Control (C&C) of NRL satellites, mission level integration and testing, platform development and testing, on orbit spacecraft checkout, testing and calibration, control software and hardware support, operations support and fiscal tracking management of these activities, as well as the development, implementation an enforcement of all safety policy, plans and procedures.

With the exception of licensed COTS software products, the core software used to provide the TT&C of the satellites (Neptune®/Common Ground Architecture) is a government owned

software package. The NRL has optimized the hardware and software architectures over many years to maximize flexibility in integrating new spacecraft programs and ground systems with minimal financial and time impacts.

BPTF is fully operational and requires that the architectures and constituent hardware be maintained and supported as they are built/developed today.

The BPTF site is leased by the Naval Research Laboratory (NRL) from the US. Army, Harry Diamond Labs and is located in Charles County, Maryland

1.3 Scope

This statement of work defines the operational and maintenance requirements necessary to the successful fulfillment of the BPTF's role within SSDD's mission.

1.3.1 Mission Support

In support of SSDD's research and development activities, the BPTF is responsible for providing the capability to support orbital maintenance and maneuver for all spacecraft of interest to the NRL.

The BPTF is responsible for providing the capability to perform spacecraft engineering analysis and anomaly resolution for the spacecraft of interest.

The BPTF is also responsible for providing the ability to train personal on the operations of new spacecraft and their associated missions.

Additionally, the BPTF provides engineering services during both spacecraft development and the ground system development phases. This includes ground system hardware development, spacecraft and ground system integration and testing, launch, early on-orbit operations and flight command and control.

1.3.2 Building, Facility and Grounds Maintenance

The BPTF site is located on approximately 42 acres and currently has 28 structures and 12 antennas with pedestals on the grounds with plans to increase the land, structures and antennas in the future

1.3.3 Custodial Services

The BPTF provides the previously identified capabilities and services on 24 hour per day 7 day per week schedule while limiting standard manned operations to 8 hours per day for a 5 day work week. All staff is on call for 24/7 support of mission data collection, orbit engineering and maintenance as well as asset retirement.

2 General Requirements

The Naval Research Laboratory (NRL) Requirements for On-Site Contractors (ROSC) dated 8 December 2008 provides general instructions for Contractors conducting business at/on NRL property. Compliance with specific paragraphs of the NRL ROSC cited in the Section 2 - General Requirement and Section 4 - Special Requirements is mandatory, other requirements in the NRL ROSC are provided for information purposes only.

2.1 Period of Performance

The period of performance is for 1 base year of 12 months and four 12-month options years.

2.2 Non-Personal Services

The Government will neither supervise Contractor employees nor control the method by which the Contractor performs the required tasks.

The Government will not assign tasks to, or prepare work schedules for, individual Contractor employees.

2.2.1 The Contractor shall be responsible for managing its employees and guarding against any actions that are of the nature of personal services, or give the perception of personal services as defined in FAR-Part 37, Service Contracting, dated 31 May 2011.

2.2.2 The Contractor shall notify the Contracting Officer (KO) if any Government requested actions constitute, or are perceived to constitute personal services.

2.3 Business Relations

2.3.1 The Contractor shall be the sole business entity responsible to NRL for fulfillment of scope identified in this work statement.

2.3.2 The Contractor shall be responsible for all subcontracted scope and the associated work products.

2.4 Contract Management and Administration

2.4.1 Contract Management

2.4.1.1 The Contractor shall execute the scope identified within this work statement in accordance with the terms and conditions of this contract

2.4.1.2 The Contractor shall not incorporate proprietary hardware or software in any deliverable developed under this contract unless authorized, in writing, by the Contracting Officer.

2.4.2 Personnel Administration

2.4.1.1 The Contractor shall provide all necessary personnel administrative resources and materials.

2.4.2.2 The Contractor shall facilitate assigned employees during designated Government non-work days or other periods where Government offices are closed due to weather, security or other special conditions.

2.4.2.3 The Contractor shall maintain the proficiency of their employees by providing initial and refresher training as required to meet the contracted requirements.

2.4.2.4 The Contractor shall be responsible for making all necessary travel arrangements for the assigned employees, as required.

2.4.3 Contract Administration

2.4.3.1 The Contractor shall establish administrative processes and procedures that are consistent with both Federal and Defense Acquisition Regulations.

2.4.3.2 The Contractor shall respond to Government requests for contractual actions within five working days of receipt of request.

2.4.4 Contract Management Plan

The Contractor shall submit a Contract Management Plan (CMP) defining the Contractor's approach to implementing and executing this contract **[CDRL-A001]**.

The CMP shall;

2.4.4.1 Contain a work breakdown structure that identifies task allocation.

2.4.4.2 Identify Key Personnel and assigned roles

2.4.4.3 Identify Stakeholder

2.4.4.4 Identify critical reference documentation

2.4.4.5 Detail transition activities and tasking

2.4.4.6 Provide the approach for monitoring contract performance evaluation criteria.

2.4.4.7 Describe the approach to risk identification and management.

2.4.4.8 Describe the approach that will be utilized in resolving contract conflicts and variations

2.4.4.9 Contain schedule that identifies all contract milestones.

2.5 Contractor Furnished Equipment, Materials and Supplies

2.5.1 All necessary equipment and materials will be furnished by the Government. All Consumable supplies shall be provided by the contractor.

2.6 Contractor Personnel, Disciplines, and Specialties

The minimum education, training, and experience required by Contractor personnel to perform support tasks identified in this PWS are defined in the labor category descriptions provided herein. The following are the labor categories that are required to meet the intent of this PWS. Additional information on these categories is found in Appendix A. Those labor categories designated as key personnel cannot be replaced without the approval of the Contracting Officer.

Labor Categories

A. Senior Tech Engineer **(key Personnel)**
B. Digital Tech **(key personnel)**
C. Network Engineer
D. RF Technician
E. Information Technology Specialist
F. Performance Analyst **(key personnel)**
G. Project Support/Junior Project Support
H. Facilities (Custodial, Electrical, HVAC, Power, Carpenter)

2.7 Location and Hours of Work

2.7.1 All tasks identified within this work statement shall be accomplished at the BPTF, 10050 Blossom Point Road, Welcome, Maryland, 20693.

2.7.2 Normal workdays are Monday through Friday except US Federal Holidays. BPTF workers typically work eight (8) hours per day, 40 hours per week. Flextime workers usually do not start earlier than 0600 and not later than 0900. Core hours of work are from 0900 to 1500 daily. All employees are expected to be available during core hours.

2.8 Travel / Temporary Duty (TDY)

Travel to other government facilities or Contractor facilities may be required for conduct of experimental research or attendance at government reviews or scientific meetings and seminars.

2.8.1 The Contractor shall submit all travel requirements (including plans, agenda, itinerary and dates) for pre-approval to the COR and is on a strictly cost reimbursable basis.

2.8.2 The Contractor shall bill costs for travel in accordance with FAR 31.205-46 Travel Costs (subject to local policy & procedures).

3.0 Performance Requirements

The BPTF provides the facilities and equipment necessary to support the mission engineering, the development, and command and control for the spacecraft of interest to the NRL. The BPTF monitors and analyses pre-launch and post-launch engineering data for management of the spacecraft systems health and welfare. BPTF also collects, analyzes and evaluates satellite telemetry data. System status and trends are documented. Areas of particular interest include thermal dynamics, attitude control, power and telemetry system performance. Satellite fault detection and correction as well as station keeping maneuvers are executed for each satellite of interest.

3.1 Orbital Maintenance and Maneuver

3.1.1 Plans and Reports

The Contractor shall provide spacecraft operations plans and reports that satisfy project mission requirements for all satellites of interest to the NRL.

All plans and procedures shall be approved by the COR or Designee prior to enactment. These plans and reports are to be delivered monthly **[CDRL-A002]**

3.1.1.1 Mission Plan and Schedule

The Contractor shall develop mission plans and schedules that consist of, but not limited to, the following

3.1.1.1.1 Times for satellite Acquisition of Signal (AOS)

3.1.1.1.2 Times for Loss of Signal (LOS)

3.1.1.1.3 Pass Duration

3.1.1.1.4 Maximum Elevations

3.1.1.1.5 Equatorial Crossing Times

3.1.1.1.6 Sun Shadow parameters

3.1.1.2 Pass Plan and Scenario

The Contractor shall develop Pass Plans and Scenarios consisting of the operations to be performed on specific satellites during a specific passes.

3.1.1.3 Scenario Implementation Procedures

The Contactor shall develop the implementation procedures necessary to execute the appropriate pass plan during the passage of the satellite of interests.

3.1.1.4 Maneuver Plan

The Contractor shall prepare a maneuver plan when a designated spacecraft is to be maneuvered on a regular basis throughout its life cycle.

The maneuver plan shall include;

3.1.1.4.1 Spacecraft identifier

3.1.1.4.2 Date of the maneuver

3.1.1.4.3 Type of maneuver.

3.1.1.5 Orbital Separation Report

The Contractor shall prepare an orbital separation report to manage the system when more than one spacecraft is flown as part of a system.

The orbital separation report shall describe;

3.1.1.5.1 Nominal vs. Actual position

3.1.1.5.2 Rates of closure (if applicable)

3.1.2 Command and Control

The Contractor shall command and control the spacecraft while providing real-time and near real-time performance analysis, fault detection and correction.

Based upon the performance analysis, the contractor shall perform fault detection and correction for the following;

3.1.2.1 Attitude control

3.1.2.2 Power systems

3.1.2.3 Thermal dynamics

3.1.2.4 Station keeping

3.1.2.5 Telemetry production

3.1.2.6 Operability

3.1.2.7 Calibration of payload data management

3.1.2.8 Calibration experimental subsystems.

3.1.3 Operations Monitoring

3.1.3.1 The Contractor shall monitor spacecraft operations, conduct performance analysis, coordinate and conduct spacecraft tests and prepare and execute commands.

3.1.4 Spacecraft Engineering

3.1.4.1 The Contractor shall perform spacecraft engineering for current and newly launched spacecraft being controlled by the BPTF.

3.1.4.2 The Contractor shall diagnose spacecraft malfunctions and provide corrective measures

3.2 Spacecraft Engineering and Analysis

3.2.1 Ground Command and Control Systems

The BPTF ground systems are comprised of multiple RF, digital, and data communications channels which interface to complex computer networks and systems for data control and processing. These ground systems primarily track satellites, receive downlink signals, transmit uplink signals, decommutate bit streams and process data.

3.2.1.1 The Contractor shall perform sustainment and advanced engineering on the ground systems that provide command and control for spacecraft of interest

3.2.1.2 The Contractor shall perform sustainment engineering for the overall ground system, including repair, calibration, integration, testing, installation and maintenance of equipment required to sustain current capabilities, support new capabilities or to complete system upgrades.

3.2.3 Information Technology (IT)

The Contractor shall perform IT sustainment services on Red Hat Linux and Microsoft Windows7, Cisco networking gear and other network systems to support BPTF's mission and administrative activities.

3.2.4 Engineering Analysis

3.2.4.1 The Contractor shall provide engineering solutions and suggestions for system upgrades. In addition, the Contractor shall interface with other program system engineering groups, and stay cognizant of system engineering goals at the program level **[CDRL-A003]**.

3.2.4.2 The Contractor shall perform advanced engineering by providing alternatives for meeting current and future requirements with modifications to the current BPTF system, introduction of new support systems into the current architecture, or replacement of subsystems with totally new subsystems to improve the site and modernize its capabilities **[CDRL-A004]**.

3.3 Building and Facilities Maintenance

The Contractor shall furnish all labor, management, supervision, tools, materials, equipment, and incidental engineering, necessary for the maintenance, repair, and minor construction of buildings and structures identified in Appendix B This work includes the performance of service call work, recurring work, and indefinite quantity work items of repair and minor construction. The Contractor shall prepare and maintain maintenance records and reports. Such reports are to be delivered on a quarterly basis **[CDRL-A005].** The contractor shall analyze the nature and frequency of the maintenance activities that occur at the BPTF and provide recommendation that would improve the effectiveness, efficiency or appearance of the BPTF. Maintenance actions must be approved by the COR prior to initiation. **[CDRL –A006]**

All building, facility and grounds maintenance activities shall comply with applicable Department of Defense (DoD), Secretary of the Navy (SECNAV), Chief of Naval Operations (OPNAV), Naval Facility (NAVFAC) and other directives, instructions, guidance and regulations as posted or as specified by the KO.

3.3.1 Within 15 calendar days after the start date of the contract, the Contractor shall establish a separate history file for each facility listed in Appendix B. All updates/revisions are to be filed within 10 days of the completed inspection, work. Facility history files are to be made available for review when requested and turned over to the COR on an annual basis and within five calendar days after contract completion.

Each file shall contain;

3.3.1.1 a list of all equipment by nomenclature and manufacturer's model number

3.3.1.2 all manufacturer's literature, brochures, and pamphlets; maintenance, operator, and parts list manuals

3.3.1.3 warranty information

3.3.1.4 a record of all completed service calls

3.3.1.5 Preventive Maintenance Inspection Checklists,

3.3.1.6 and any other information relevant to work performed during the term of the contract. or construction.

3.3.2 The Contractor shall provide new or factory reconditioned parts and components when providing maintenance, repair, and minor construction services as described herein.

3.3.2.1 All replacement units, parts, components and materials to be used in the maintenance, repair, and minor construction of facilities and equipment shall be compatible with that existing equipment on which it is to be used

3.3.2.2 Shall be of equal or better quality than original equipment specifications

3.3.2.3 Shall comply with applicable Government, commercial, or industrial standards such as National Board of Underwriters or Underwriters' Laboratories, Inc., National Board of Fire Underwriters, National Electrical Manufacturer's Association, American Society of Mechanical Engineers, etc.; and used in accordance with original design and manufacturer intent.

3.3.3 The Contractor shall plan and schedule work to assure material, labor, and equipment are available to complete work requirements with regard to the established time limits and quality standards.

3.3.3.1 Verbal scheduling and status reports shall be provided when requested by COR.

3.3.3.2 The status of any item of work shall be provided within two hours of the inquiry during the regular working hours, and within 8 hours after regular working hours.

3.3.3.3 All work shall be performed during regular working hours (as identified in paragraph 2.7.

3.3.3.3.1 If the Contractor desires to carry on work on holidays or outside regular working hours, they shall obtain the written approval of the COR.

3.3.3.3.2 When non-essential services have been scheduled on the date a holiday occurs, such services shall be performed on the following working day.

3.3.3.4 The Contractor shall arrange work so as not to cause interference with the BPTF mission.

In those cases where interference is unavoidable;

3.3.3.4.1 Contractor shall make every effort to minimize the impact of the interference and its effects.

3.3.3.4.2 Shall submit the schedules to the COR for approval.

3.3.3.4.3 In no event shall the Contractor change approved work schedules without the prior consent of the COR.

3.4 Grounds Maintenance

The Contractor shall furnish all labor, supervision, equipment, and materials necessary to provide grounds maintenance services in accordance with Appendix D. The services to be provided include cutting grass, edging, fertilization, collection and disposal of litter and trash, vegetation cutting and removal, underbrushing, grassing, sodding, sprigging, erosion control, tree and shrub pruning, tree and stump removal, irrigation, ditch cleaning. The use of herbicides to accomplish certain grounds maintenance functions may be permitted if approved by the KO and are in accordance with provisions specified in Appendix D.

3.4.1 All grassed areas shall be cut and kept at a uniform height between 2 to 6 inches.

3.4.2 All sidewalks, driveways, street edges, curbs, and other paved areas shall be edged

3.4.3 The Contractor shall furnish and apply applicable (N-P-K) analysis fertilizer to all parcels.

3.4.3.1 Fertilizer shall be applied at the regionally customary frequency and time periods.

3.4.4 The Contractor shall collect and dispose of trash and litter in all grassed areas, flower and shrub beds, wooded areas, sidewalks, streets, and curbs.

3.4.4.1 All trash and liter shall be disposed of the same day as collected.

3.4.5 Fence line maintenance shall consist of the removal of grass, weeds, trees (less than two inches in diameter at ground level), and all other vegetative growth to ground or pavement level within 12 inches on both sides of fence lines. Removal may be by either mechanical or approved chemical methods.

3.4.5.1 Debris generated by fence line maintenance operations shall be removed and disposed of the same working day

3.5 Custodial Services

The Contractor shall provide custodial services for the facilities outlined in Appendix B and in accordance with Appendix E.

3.6 Technical and Financial Status Reports

Each of the following reports is to be delivered no later than the 15th day of each month to the COR.

3.6.1 Technical Status Report

The Contractor shall provide the COR with a Technical Status Report that highlights significant actions that occurred during the reporting period relative to contract performance . Significant actions include any activity that will impact, or have impacted, the projected performance, cost or schedule of the program effort. **[CDRL –A007]**

3.6.1.1 Spacecraft Status Report (SSR)

The Contractor shall provide a monthly report providing separately the technical status of each supported spacecraft **[CDRL-A008]**. The report is to be submitted electronically in standard Microsoft Office format or Portable Document Format and shall include, at a minimum: subsystem performance assessment, on-orbit activity report, anomaly descriptions with actions taken, results and recommendations and lessons learned and life extension or performance enhancement recommendations, where applicable.

3.6.1.2 Ground Systems Status Report (GSSR)

The Contractor shall provide a monthly report of all ground systems status and station overall technical status, including projections of trends and assessment of life remaining where appropriate as well as recommendations for upgrades, repairs and extraordinary preventative maintenance measures when required **[CDRL-A009]**.

3.6.2 Financial Reports

3.6.2.1The Contractor shall provide information on cost data and staffing levels. Cost data and staffing levels include current month, cumulative monthly cost data, and manpower usage reporting, and is correlated to the CWBS elements **[CDRL-A010]**.

3.7 Government-Furnished Property

The Contractor shall be responsible for the inventory, storage, maintenance, health/welfare, and calibration of all Government-Furnished Equipment (GFE) and Government Furnished Property (GFP) located at the BPTF and utilized in conjunction with this work statement in accordance with Government Property Management procedures.

3.7.1 The contractor shall develop and maintain and GFE and GFP inventory report and maintenance log.

4 Special Requirements

This section describes the special requirements for this effort. The following sub-sections provide details of various considerations on this effort.

4.1 Security

Contractor personnel performing work under this contract must have a Top Secret/SCI at time of the proposal submission, and must maintain the level of security required for the life of the contract. The security requirements are in accordance with the subsections below.

4.1.1 DD Forms 254

The Contractor shall be granted access to classified information necessary for performance of this contract upon contract award as specified in the basic DD Form 254. All Contractor personnel with access to unclassified information systems, including e-mail, require at a minimum a favorable National Agency Check (NAC).

4.1.2 Visitor Group Security Agreement (VGSA)

The VGSA outlines responsibilities in the following areas: Contractor security supervision; Standard Practice Procedures; access, accountability, storage, and transmission of classified material; marking requirements; security education; personnel security clearances; reports; security checks; security guidance; emergency protection; protection of government resources; DD Forms 254; periodic security reviews; and other responsibilities, as required.

The Contractor shall sign a Contractor Visitor Group Security Agreement to protect classified information involved in performance under this contract.

4.1.3 Special Access Programs (SAPs)

Technical Direction Memorandums (TDM) issued under this contract require access to, and clearance for, Special Access Programs (SAPs) up to and including TS/SCI level. The TDM requiring such access will be in coordination with a DD Form 254 allowing appropriate access and authorizing the specific security requirements.

4.1.4 Identification (ID) Badges and Vehicle Passes

The Government will issue ID badges and vehicle passes to Contractor personnel working at NRL and/or the BPTF site in accordance with the requirements of Paragraph 1(b) BADGES AND VEHICLE PASSES of the NRL ROSC. A favorable trustworthiness determination is required in order for nominated Contractor personnel to be granted access to NRL facilities and issued an NRL badge. NRL issued Contractor badges will be worn and readily visible at all times while Contractor personnel are on NRL facilities.

4.1.4.1 The Contractor shall provide all requested information required to facilitate the use and possession of badges and vehicle passes.

4.1.4.2 The Contractor shall ensure the immediate return of all ID badges issued to Contractor employees under any of the following conditions completion of contract, relocation, retirement or

termination of an employee, or upon request of the Contracting Officer or Contracting Officer's Representative.

4.2 Safety

The Contractor shall comply with BPTF safety requirements.

4.3 Transition

The Contractor shall follow the transition plan submitted as part of the Contractor's Management Plan and keep the Government fully informed of status throughout the transition period.

4.4 Government Furnished Materials

As specified in Section 2.5, all equipment necessary to perform the tasks in this work statement will be provided by the Government.

5 Deliverables

The following are the deliverables identified in the preceding requirements (denoted as **[CDRL A0xx]** and listed below). Are CDRLs shall be delivered in contractor format.

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Identifier	Name	Description
A001	Contractor Management Plan	Defines the Contractor's approach to implementing the contract.
A002	Orbital Maintenance & Maneuver Plans, Procedures and Reports	Describes the contractor’s plans and procedures for the on orbit management of the designated spacecraft that are to be maneuvered on a regular basis throughout its life cycle.
A003	System Upgrade Recommendation Report	Describes the analysis results and proposed system upgrade alternatives for meeting current and future BPTF mission requirements
A004	Alternative Methods and Architecture Recommendations	Describes the recommended Methods modifications and Architecture enhancements for increased effectiveness in meeting current and future requirements
A005	Facility Maintenance Records and Reports	A report that consists of all maintenance activity logged at the BPTF.
A006	Facility Improvement	Recommend improvements to the structures and grounds that would improve

	Recommendation Report	the look, operation or efficiency of the BPTF.
A007	Technical Status Report	Highlights significant actions that occurred during the reporting period relative to the BPTF's mission performance.
A008	Spacecraft Status Report	Provide technical status of each supported spacecraft.
A009	Ground Systems Status Report	Provide ground systems status
A010	Monthly Progress and Funds Status Report	Provide information on cost data and staffing levels.

APPENDIX A - PERSONNEL QUALIFICATIONS

APPENDIX A - Personnel Qualifications

A. Senior Tech Engineer (Key Personnel)

Position Description

This senior professional position primarily requires the application of knowledge of (a) systems engineering sciences of satellite command and control (b) system development and integration, and (c) data processing techniques utilizing computers, microprocessors, data busses and interfaces to BPTF equipment. Work pertains primarily to assessing and demonstrating the effectiveness of new concepts and ideas for equipment in achieving particular mission goals; formulating overall design concepts and criteria which establish the baseline for advancement of state-of-the-art engineering developments; and reviewing and assessing overall progress in the development effort. This position requires resolving technical difficulties that can occur due to changes in characteristics, approach, criteria, and requirements.

Education/Qualifications

Bachelor's degree in a scientific discipline or minimum of 10 years experience in the command and control of research satellites.

Clearances

These individuals must have the capability to obtain and maintain a clearance permitting access to information classified SECRET or higher. The number and type of clearances required are described in the attached DD254.

Relevant Experience Considerations

Experience in the resolution of technical problems and the development of systems for use in spacecraft communication is desirable. Experience relevant to satellite communication systems is especially desirable. Previous experience providing engineering in satellite ground station and instrument control systems. Minimum 10 years experience working at a sophisticated satellite command and control facility.

Statement of Work References

3.0 Technical Requirements

APPENDIX A - PERSONNEL QUALIFICATIONS

B. Digital Tech (key personnel)

Position Description

This professional position primarily requires the application of knowledge in the areas of; (a) digital ground station equipment. The work pertains primarily to planning, design, development, testing, installation, and maintenance of complex digital equipment. Additional related responsibilities include the production of technical and user documentation, training and system orientation, and consultation with related development teams throughout the spacecraft life cycle.

This position encompasses all aspects of digital maintenance and operations from initial planning and design to final installation and maintenance.

Education/Qualifications

Bachelor's degree in a scientific discipline or minimum of 7 years experience in the digital engineering environment is required.

Clearances

In some cases, individuals must have the capability of obtaining and maintaining a clearance permitting access to information classified SECRET or higher pending the requirements of each particular task order supported within the scope of this contract. The number and type of clearances required are described in the attached DD254.

Relevant Experience Considerations

Experience in operating and maintaining digital systems using various environments and centralized system architectures is required. Specific experience in the design, development, and maintenance of digital equipment for satellite command and control primarily used for R&D spacecraft.

Statement of Work References

3.2 Spacecraft Engineering and Analysis

APPENDIX A - PERSONNEL QUALIFICATIONS

C. Network Engineer

Position Description

This professional position requires a strong background in the administration of LANs, WANs, and remote networks including a strong working knowledge of network hardware, software, protocols, and network security in a client/server environment. A strong working knowledge of servers, modems, switches, firewalls, and routers is required. Experience includes diagnosing, troubleshooting, and correcting problems with LAN/WAN services in order to install, configure, maintain and upgrade software on network systems.

Education/Qualifications

Technical background, in Engineering, Management Information Systems (MIS), Computer Science, Physics, and/or Math, or a minimum of 3-5 years experience in the network support role in a multi-platform environment, including thorough knowledge/experience with network protocols (specifically TCP/IP) is required. Computer or network-related certificates (e.g. Cisco, Bay, Microsoft) are desirable.

Clearances

Individuals must have the capability to obtain and maintain clearances permitting access to information classified SECRET or higher. The number and type of clearances required are described in the attached DD254.

Relevant Experience Considerations

Must posses experience with Cisco and/or related Hubs/Routers and have a solid background in PC technology including, but not limited to, the following: desktop PC, PC server hardware & software selections, installation, administration, control, troubleshooting, and support. Solid knowledge of LAN and WAN interconnecting hardware and network security issues. Previous experience in designing, developing and implementing network topologies for a broad range of user and customer environments in support of sophisticated ground stations are desirable.

Statement of Work References

Personnel will be distributed among the work referred to in the following SOW sections:

3.2.3 Information Technology

3.2.4 Engineering Analysis

APPENDIX A - PERSONNEL QUALIFICATIONS

D. RF Technician

Position Description

This professional position primarily requires the application of knowledge in the areas of; RF ground station equipment. The work pertains primarily to planning, design, development, testing, installation, and maintenance of complex RF equipment. Additional related responsibilities include the production of technical and user documentation, training and system orientation, and consultation with related development teams throughout the spacecraft life cycle. This position encompasses all aspects of RF maintenance and operations from initial planning and design to final installation and maintenance.

Education/Qualifications

Technical background, in Engineering, Computer Science, Physics, and/or Math is required. Minimum of 7 years experience in the digital engineering environment is required.

Clearances

These individuals must have the capability to obtain and maintain a clearance permitting access to information classified SECRET or higher. The number and type of clearances required are described in the attached DD254.

Relevant Experience Considerations

Experience in contributing to the resolution of technical problems and the development of systems for use in RF communication is desirable. Experience relevant satellite command and control system used for R&D satellites is especially desirable.

Statement of Work References

3.2.1 Ground command and Control Systems

APPENDIX A - PERSONNEL QUALIFICATIONS

E. Information Technology Specialist

Position Description

Participate in the analysis, design, development, testing, and deployment of IT-based applications and services. Also perform interactive prototyping, pilot project testing, and Java programming in an integrated application development environment. Must be well versed in software development methodologies, and be knowledgeable in a structured application development process. Additionally, responsible for the production, management, and maintenance of multiple web sites and applications. Oversee content on multiple web sites and ensure that web sites are consistent with overall goals, design, and technical standards. Implement designs and content designed by team members and performs necessary solutions to problems. Work closely with development groups to ensure compliance of technical interfaces with the product.

Education/Qualifications

Bachelor's degree in IT, MIS or equivalent required. Minimum 3-5 years experience required.

Clearances

Individuals must have the capability to obtain and maintain clearances permitting access to information classified SECRET or higher. The number and type of clearances required are described in the attached DD254.

Relevant Experience Considerations

Experience relevant to satellite and communications systems. Experience at a sophisticated ground station desirable.

Statement of Work References

3.2.3 Information Technology

APPENDIX A - PERSONNEL QUALIFICATIONS

F. Performance Analyst (key personnel)

Position Description

Individuals performing this function typically provide resolution and monitors performance of spacecraft subsystems. This category will be focused on spacecraft maneuvers and the overall health of the spacecraft

Education/Qualifications

Technical background, in Engineering or equivalent is preferred. A minimum of 5-7 years experience in a field engineering and/or integration and test role required.

Clearances

Individuals must have the capability to obtain and maintain clearances permitting access to information classified SECRET or higher. The number and type of clearances required are described in the attached DD254.

Relevant Experience Considerations

Experience in working a sophisticated ground stations that primarily focus on R&D satellites. Experience with attitude control, thermal and station keeping for satellites.

Statement of Work References

3.1 Orbital Maintenance and Maneuver

APPENDIX A - PERSONNEL QUALIFICATIONS

G. Project Support/Junior Project Support

Individuals performing in the area provide overall support to the projects being performed. This support can be tracking equipment, funding associated with the projects, etc.

Education/Qualifications

Bachelors degree. A minimum of 5-7 years experience working at a sophisticated ground station for project support while 3-5 years experience for the Junior Project Support.

Clearances

Individuals must have the capability to obtain and maintain clearances permitting access to information classified SECRET or higher. The number and type of clearances required are described in the attached DD254.

Relevant Experience Considerations

Experience in working at sophisticated ground stations that primarily support R&D satellites is preferred.

Statement of Work References

3.7 Technical Status Report

3.8 Government Furnished Property

APPENDIX A - PERSONNEL QUALIFICATIONS

H. Facilities

Position Description

Individuals performing this function typically support facilities infrastructure.

Education/Qualifications

A minimum of 5-7 years experience working at government installations. At least one person in each of the following areas 1) Electrical, 2) HVAC, 3) Power, 4) Carpenter. Personnel must have experience and be familiar with local building codes and regulations.

Clearances

Individuals must have the capability to obtain and maintain clearances permitting access to information classified SECRET or higher. The number and type of clearances required are described in the attached DD254.

Statement of Work References

3.3 Building and Facilities Maintenance

3.4 Grounds Maintenance

3.5 Building Maintenance

APPENDIX B – INVENTORY OF BUILDING AND STRUCTURES

APPENDIX B - Inventory of Buildings and Structures

The Contractor shall maintain the following facilities:

FACILITY NUMBER	FACILITY NAME	YEAR BUILT	SQUARE FEET	TYPE STRUCTURE	DRAWING NUMBERS
1	RF & DIGITAL MAINT SHOP	1958	2900	Building	
2	CARPENTRY SHOP	1967	900	Building	
3	GENERATOR BLDG	1988	2400	Building	
4	OPERATIONS (SHM)	1974	4200	Building	
5	POWER DISTRIBUTION BLDG	1974	200	Building	
6	GENERATOR BLDG	1974	1400	Building	
7	LOGISTICS WAREHOUSE	1977	1800	Building	
8	FACILITIES MAINTENACE	1979	1800	Building	
9	WAREHOUSE	1982	1600	Building	
10	WAREHOUSE	1982	2400	Building	
11/22	ADMINISTRATION	1988	9600	Building	
12/23	OPERATIONS (EEM)	1988	7000	Building	
13	SNE OPERATIONS		12000	Building	
14	STORAGE SHED	1994	400	Metal Shed	
15	MAINTENACE EQUIPMENT SHED	1996	1800	3 Sided Pole Building	
20	2000 GAL FUEL STORAGE TANK	1988	n/a	Storage Tank	
21	2000 GAL FUEL STORAGE TANK	1988	n/a	Storage Tank	
24	FLAG POLE	1990	n/a	Flag Pole	
300	ANTENNA WORKSHOP	1956	1430	Building	

APPENDIX B – INVENTORY OF BUILDING AND STRUCTURES

FACILITY NUMBER	FACILITY NAME	YEAR BUILT	SQUARE FEET	TYPE STRUCTURE	DRAWING NUMBERS
302	ANTENNA MACHINE SHOP	1981	600	Building	
303	ANTENNA MAINT BLDG	1975	400	Building	
304	ANTENNA WAREHOUSE	1979	3072	Building	
305	SECURITY FENCE (ANTENNA SUPPORT FACILITY COMPOUND)	1956	n/a	Fence	
306	STORAGE SHED	1986	100	Metal Shed	
312	ANTENNA GENERATOR BLDG	1968	320	Building	
314	ANTENNA WAREHOUSE	1987	3072	Building	
315	DIESEL FUEL STORAGE TANK	1994	n/a	Storage Tank	
316	SNE FIRE PUMP BLDG	2010	420	Building	
319	SNE GENERATOR BLDG	2010	3132	Building	
S1	TRANSMITTER BUILDING	1975	134	Building	
S8	TRANSMITTER BUILDING	1986	80	Relocatable Van	
A1	20’ SATCOM ANTENNA	1982	n/a	Dish Antenna	
A2	20’ SATCOM ANTENNA	1982	n/a	Dish Antenna	
A3	20’ SATCOM ANTENNA	1977	n/a	Dish Antenna	
A4	20’ SATCOM ANTENNA	1977	n/a	Dish Antenna with Radome	
A5	20’ SATCOM ANTENNA	1977	n/a	Dish Antenna	
A6	10M SATCOM ANTENNA	1973	n/a	Dish Antenna	
A7	13M SATCOM ANTENNA	1974	n/a	Dish Antenna	
A8	12’ SATCOM ANTENNA		n/a	Dish Antenna	
A9	20’ R&D ANTENNA		n/a	Dish Antenna with Radome	

APPENDIX B – INVENTORY OF BUILDING AND STRUCTURES

FACILITY NUMBER	FACILITY NAME	YEAR BUILT	SQUARE FEET	TYPE STRUCTURE	DRAWING NUMBERS
302	ANTENNA MACHINE SHOP	1981	600	Building	
303	ANTENNA MAINT BLDG	1975	400	Building	
304	ANTENNA WAREHOUSE	1979	3072	Building	
305	SECURITY FENCE (ANTENNA SUPPORT FACILITY COMPOUND)	1956	n/a	Fence	
306	STORAGE SHED	1986	100	Metal Shed	
312	ANTENNA GENERATOR BLDG	1968	320	Building	
314	ANTENNA WAREHOUSE	1987	3072	Building	
315	DIESEL FUEL STORAGE TANK	1994	n/a	Storage Tank	
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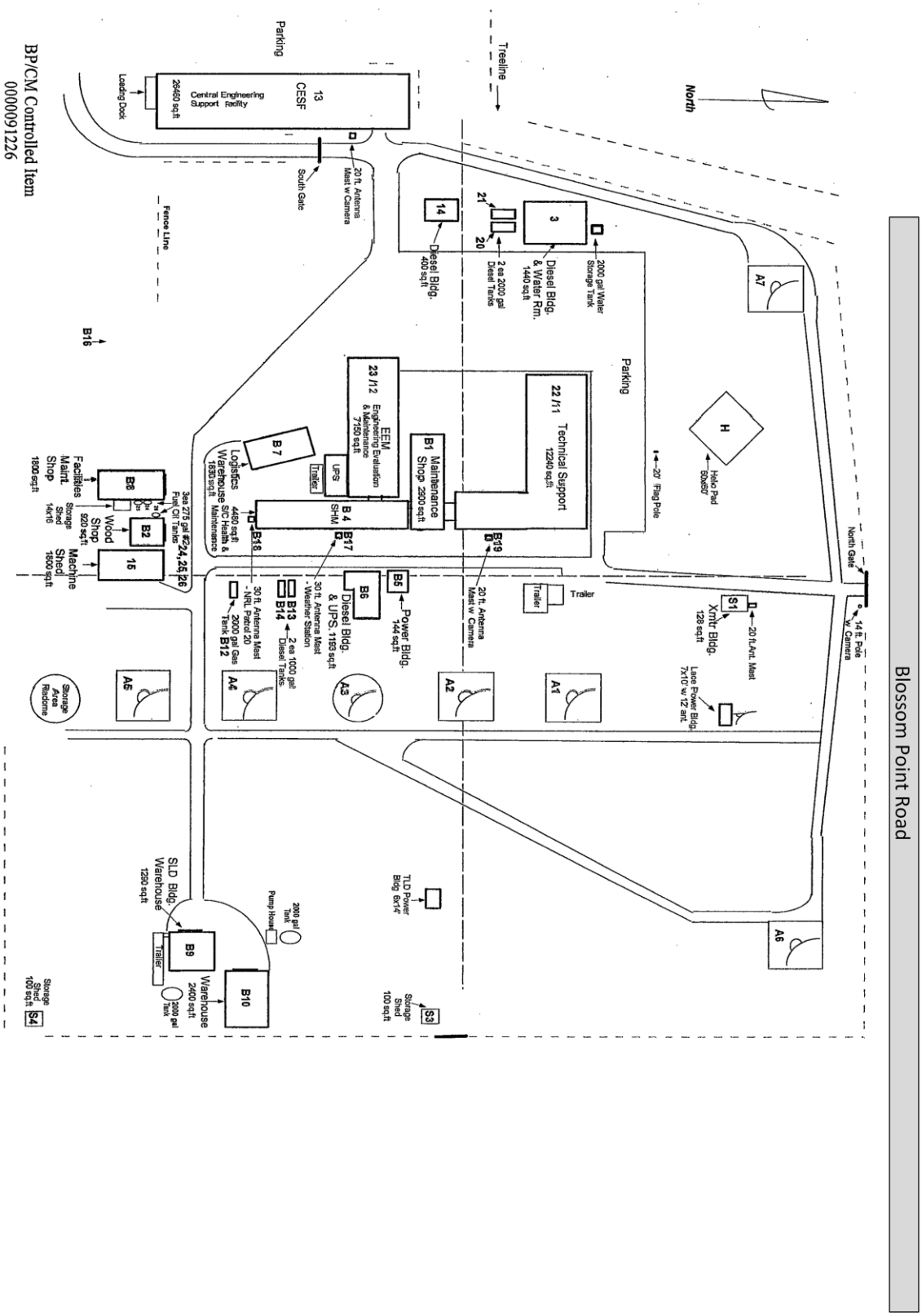
A3	20’ SATCOM ANTENNA	1977	n/a	Dish Antenna	
A4	20’ SATCOM ANTENNA	1977	n/a	Dish Antenna with Radome	
A5	20’ SATCOM ANTENNA	1977	n/a	Dish Antenna	
A6	10M SATCOM ANTENNA	1973	n/a	Dish Antenna	
A7	13M SATCOM ANTENNA	1974	n/a	Dish Antenna	
A8	12’ SATCOM ANTENNA		n/a	Dish Antenna	
A9	20’ R&D ANTENNA		n/a	Dish Antenna with Radome	

APPENDIX B – INVENTORY OF BUILDING AND STRUCTURES

FACILITY NUMBER	FACILITY NAME	YEAR BUILT	SQUARE FEET	TYPE STRUCTURE	DRAWING NUMBERS
B1	ANTENNA TRAILER B1	1993	1440	RELOCATABLE TRAIER	
B2	ANTENNA TRAILER B2	1993	1440	RELOCATABLE TRAIER	
B3	ANTENNA TRAILER B3	1993	1440	RELOCATABLE TRAIER	
B11	3 LEG COLLIMATION TOWER	1986	n/a	Tower	
B12	2000 GAL FUEL STORAGE TANK	1981	n/a	Storage Tank	
B16	STATION PERIMETER SECURITY FENCE	1987	n/a	Fence	
	SECURITY TRAILER (ANTENNA SUPPORT FACILTIY COMPOUND)		160	RELOCATABLE TRAILER	
	STORAGE TRAILER		1152	RELOCATABLE TRAILER	
	STORAGE RADOME		900	Radome	
	SNE ANTENNA POWER BUILDING	2010		Building	
	SNE ANTENNA SUPPORT BUILDING	2010		Building	
	SNE ANTENNA #1	2013		Dish Antenna with Radome	
	SNE ANTENNA #2	2013		Dish Antenna with Radome	
	SNE OPS BUILDING SECURITY FENCE	2010	n/a	Fence	
	SNE ANTENNA SECURITY FENCE	2010	n/a	Fence	

APPENDIX B – INVENTORY OF BUILDING AND STRUCTURES

APPENDIX B – INVENTORY OF BUILDING AND STRUCTURES



APPENDIX C – BUILDING MAINTENANCE

APPENDIX C – Building Maintenance

DEFINITIONS

A. Service calls Service calls are defined as maintenance, repair, minor construction and/or other miscellaneous work requirements. which are submitted by building occupants, are brief in scope; require not more than 39 hours estimated total labor hours for accomplishment; require not more than $3,000 in total direct material costs, to include parts or entire unit replacement; and do not reasonably require detailed job planning. Multiple maintenance, repair, and minor construction requirements received for the same trade in the same building or structure at the same time will be combined into one service call. However, not more than 5 such requirements will be included on any one service call. A log is to be maintained of all calls received; a description of the problem or requested work, date and time received, classification, facility number/name, and caller's name/telephone number shall be recorded for each call.

(1) During Regular Working Hours. The contractor shall receive service call requests during regular working hours and classify each call in accordance with the definitions provided below. A description of the problem or requested work, date and time received, location, and other appropriate information shall be recorded. Service call work authorization must be received by the COR prior to serviced such request.. If the call is classified as emergency, the contractor shall notify the COR by phone and verbally provide the specifics of the emergency and the COR may provide verbal authorization. Request to be documented following the receipt of verbal authorization..

(2) After Regular Working Hours. The Contractor shall receive service call requests from the site occupants and other authorized Government representatives after the Government's regular working hours, on weekends, and holidays. The Contractor shall classify such calls as emergency, urgent, or routine and shall respond accordingly. A copy of the service call log shall be delivered to the Government's work reception center by 1100 the next regular Government working day for data entry into the automated work reception system. Service call work authorization forms will be transmitted to the Contractor. The Contracting Officer may upgrade or downgrade the classification of any service call received by the Contractor.

(3) Service Call Classification

(a) Emergency Calls. Service calls will be classified as emergency at the discretion of the KO. Generally, emergency calls consist of correcting failures that constitute an immediate danger to personnel, threaten to damage property, or threaten to disrupt site missions or operations. Examples include outages in utility systems which support mission equipment or provide other vital services, clogged drains, broken water

pipes, gas leaks, inoperable pumps, roof leaks, electrical defects which may cause fire or shock, unlocking of locks or safes, etc. Historically, no more than 5% of the service calls issued have been classified as emergency.

(b) Urgent Calls. Service calls will be classified as urgent at the discretion of the COR. Generally, urgent calls consist of providing services or correcting failures which do not immediately threaten personnel, property, or activity missions, but will soon inconvenience and/or affect the health or well being of personnel, lead to property damage, or lead to disruptions in operational or training missions. Calls will also be classified as urgent when the service or failure has upper level or command/management attention. Historically, no more than 1% of service calls issued have been classified as urgent.

(c) Routine Calls. Service calls will be classified as routine when the work does not qualify as an emergency or urgent call.

(4) Response to Service Calls. The Contractor shall have procedures for receiving and responding to emergency and urgent service within the specified response time seven days a week, including weekends and holidays. A single local or toll free telephone number shall be provided by the Contractor for receipt of all service calls. All telephone calls shall be answered within 30 seconds by an individual fully familiar with the Contractor's work control procedures.

(a) Response by Classification

(1) Emergency Calls. The Contractor shall respond immediately and must be working within 120 minutes after receipt of an emergency service call. The Contractor shall work without interruption and shall correct, remedy, or take other action as required to contain the emergency condition before departing the job site (e.g., shut off water, close gas valve, temporarily patch roof leak, etc.) If further labor and material (follow-up work) are required to complete the repair, the call will be reclassified as either urgent or routine, as appropriate, and the corresponding completion time will then apply. Such follow-up work shall be considered part of the original service call.

(2) Urgent Calls. The Contractor shall be working within 1 hour after receipt of an urgent service call received during regular working hours, and within 2 hours for urgent calls received after regular working hours, on weekends, or holidays. Once begun, the work shall be prosecuted to completion and must be completed within 8 hours.

(3) Routine Calls. All routine service calls shall be completed within 5 working days after receipt. Routine calls shall normally be accomplished during regular working hours, Monday through Friday.

(5) Beyond the Scope of Urgent Call. If the Contractor responds to an urgent service call and believes the work required is beyond the scope of a service call, as defined above, the COR must be contacted within one hour. If requested by the KO, the Contractor shall provide a summary of the work needed and a detailed estimate showing labor hour and material requirements within 8 hours of the request.

(a) If the KO agrees the work required is beyond the scope of a service call, the KO may authorize the Contractor to proceed with the work or cancel the service call work authorization.

(b) If the KO determines the work falls within the scope of a service call, payment deductions and liquidated damages will be taken if the work is not completed by the original time limit established when the call was received.

(6) Beyond the Scope of Routine Call. If the Contractor responds to a routine service call and believes the work required is beyond the scope of a service call, as defined above, the service call work request shall be returned to the COR no later than 1100 the following workday. The Contractor shall attach a description of the work required and a detailed estimate showing labor hour and material requirements.

(a) If the KO agrees the work required is beyond the scope of a service call, the scope of the work will be reduced and a new service call work authorization request will be issued by the COR, or the original service call work request will be canceled

(b) If the KO determines the work falls within the scope of a service call, the original service call work request will be returned to the Contractor for work completion. Work on such calls shall still be completed within 5 working days from the original receipt date/time, plus the amount of time the work request was held by the KO for determination.

(7). Completed Calls. Within one Government working day after completion of each service call, the Contractor shall add the following information into the Service Call Log.

(a) Enter the following information into the automated work reception system:

(1) Description of work actually completed.

(2) Brief description of material and parts used, including quantities.

(3) Date and time work began.

(4) Date and time work was completed.

(5) Hours of labor (by craft) expended.

(b) Add the following information to the service call work request and return to the COR:

(1) Description of work actually completed.

(2) Brief description of material and parts used, including quantities.

(3) Date and time work began.

(4) Date and time work was completed.

(5) Hours of labor (by craft) expended.

(6) Signature or initials of the Contractor's craftsman performing the work (or supervisor), indicating the work has been completed.

B. Spares and Repairs The Contractor shall maintain sufficient parts, materials, and equipment on hand to perform all recurring work as specified. Lack of availability of parts, material, or equipment will not relieve the Contractor from the requirement to complete work within the time limits and quality standards stated herein.

(1). Preventive Maintenance

(a) The Contractor shall perform preventive maintenance inspections (PMs) on the systems and equipment listed in Appendix B. PMs consist primarily of inspection, lubrication, calibration, adjustment, and minor part and component replacement (e.g., filters, belts, hoses, fluids, oil and grease) as required to minimize malfunction, breakdown, and deterioration of equipment; and the identification of and/or performance of any repairs required to ensure the equipment is operating per manufacturer's standards. The Contractor shall complete all identified repairs and provide all necessary services, parts, and materials as part of the PM. However, if repairs require more than 8 estimated total labor hours to complete, or will exceed $500 in total direct material costs, the COR shall be notified within one hour. These time and material limits apply to each PM for each individual system or piece of equipment.

(b) Excessive or repeated system breakdowns or deficiencies may be considered by the Government as an indication of unsatisfactory Contractor performance of PMs. The Contractor shall recognize untimely response to repair requirements and lower levels of PM will result in increased repair frequencies and additional material costs. The Contractor may, option and at no additional cost to the Government, increase the level and/or frequency of PM in an effort to minimize repair requirements. The Government will provide the manufacturers' recommended PM schedules, manuals, pamphlets, etc., if available, to the Contractor.

(c) The Contractor shall submit a detailed PM schedule to the COR for approval at least 15 calendar days after the start date of the contract. The schedule shall cover the entire term of the contract and include, for each system/piece of equipment and PM listed in Appendix B, the facility number, the work to be performed (e.g., semiannual PM), and the week of the month the PM will be performed.

(d) PMs for HVAC equipment shall be scheduled to coincide with the periods immediately prior to the heating and cooling seasons. Heating season PMs shall be performed during the period October 1st to May 1st. Cooling season PMs shall be performed during the period April 1st to October 1st, except in the equipment areas where the cooling periods are year round. PMs for all other systems/equipment may be scheduled at the Contractor's discretion unless specific requirements or restrictions are included elsewhere in the contract.

(e) Once approved by the COR, the Contractor shall strictly adhere to the schedule to facilitate the Government's inspection of the work. Proposed changes to the approved schedule must be submitted in writing for the COR's approval at least five working days prior to the originally scheduled PM date. In no event shall the Contractor change approved schedules without the prior consent of the COR.

(2) Government-furnished PM record cards or tags shall be attached by the Contractor, in a conspicuous location, to each item of equipment during the initial PM. The Contractor's mechanic shall initial and date these cards or tags upon completion of each scheduled PM. To facilitate Government verification of PMs, the Contractor shall mark all replacement items (e.g., filters and belts) with the date changed.

C. Relamping. The Contractor shall provide relamping services, including emergency, exit, and exterior lights attached to buildings. Replacing all blackened, discolored, blinking, and burned out fluorescent tubes and incandescent bulbs; and replacing other defective parts such as ballasts, starters, etc. In areas where the fixtures are not easily accessible, such as high bay or hangar areas, the Contractor may elect to perform group relamping. Replacement lamps and components shall be the same type, wattage, and voltage as those removed. The Contractor shall replace bulbs, tubes, and other defective parts per paragraph C.8 between scheduled relamping services.

D. Start-up/Shutdown of HVAC Systems

(1) The Contractor shall perform start-up/shutdown of HVAC systems. Normally, heating start-up and air conditioning shutdown shall be accomplished during the period October 1st to May 1st, and air conditioning start-up and heating shutdown shall be accomplished during the period April 1st to October 1st, except in equipment areas where the cooling season is year round. The COR will advise the Contractor of the specific date or dates when such services should begin to be accomplished. All work shall be completed within 5 calendar days of the specified start date for equipment

in individual buildings, or within 10 calendar days if services are ordered for all buildings at the same time.

(2) The Contractor shall perform specific inspections, procedures, and preservation required by the manufacturer; verify all systems and components are operating as designed; and identify needed repairs that may be accomplished during the off-season. The Contractor shall accomplish any minor repairs within the scope of a PM as part of the start-up/shutdown. A report that work has been completed, including a list of major repairs beyond the scope of a PM, shall be provided to the COR for each item of equipment within 5 working days after completion of the start-up/shutdown service.

E. CARPENTRY AND MASONRY. Carpentry and masonry maintenance, repair, and minor construction services shall be provided in accordance with the definitions, procedures, and standards specified in this section and NAVFAC Manual MO-111,

a. General Interior Work

(1) Floors and Floor Coverings. Damaged or deteriorated flooring, subflooring, and structural members shall be repaired or replaced to provide a structurally sound, uniform, and aesthetic surface which is free of cracks, breaks, chips, tears, gouges, stains, and buckling. The bid prices for indefinite quantity unit priced tasks for flooring replacement shall include all costs for removal and disposal; subfloor surface preparation; and installation and finishing of flooring and baseboard and/or shoe molding.

(a) Resilient Tiles. Damaged or deteriorated tiles shall be replaced with matching tiles of the same thickness as original. Tiles to be replaced shall be removed without affecting adjacent tiles. The affected area shall be cleared of all debris and moisture to provide a clean, uniform dry surface for the installation of new tile. If tile is replaced adjacent to a wall, vinyl baseboard shall be replaced at no additional cost. If the tile in an entire room is replaced, all vinyl baseboard in that room shall be replaced at no additional cost. Installation shall be in accordance with manufacturer's instructions. The repaired or replaced areas shall be thoroughly cleaned and waxed to provide a uniform surface.

(b) Linoleum and Vinyl Sheet Flooring. Areas of flooring having gashes or other defects shall be replaced with matching sheet flooring of the same thickness as the original. Damaged flooring to be replaced shall be removed without affecting adjacent areas. The patch shall be installed per the flooring manufacturer's instructions using the recommended adhesive. If flooring is replaced adjacent to a wall, vinyl baseboard shall be replaced at no additional cost.

(c) Finished Wood Flooring

1 Repair/Replacement. Loose or slightly warped flooring shall be secured with screw-type flooring units driven at a 45 to 50 degree angle or reglued to concrete slabs with appropriate adhesive. Nails shall be set and filled with a wood putty. Scarred flooring that has holes and gashes less than ½-inch wide shall be filled and stained. All other damaged flooring shall be removed and replaced without damage to adjacent walls or flooring. Damaged subflooring shall be removed and replaced with new exterior grade plywood of the appropriate thickness. The subfloor shall be covered with a layer of 15 pound asphalt saturated felt lapped 4 inches at edges and ends. Defects in concrete slabs, such as rough or scaling areas or high/low spots shall be corrected. The replacement flooring shall be of the same quality, type and species as the existing. The replacement flooring shall be nailed with screw-type flooring nails and be blind nailed at an angle of 45 to 50 degrees, top nailed vertically using pilot holes where necessary to prevent splitting, or glued to concrete slabs in accordance with the manufacturer printed instructions. Where possible, nails shall be driven into supporting floor joints. Nail heads shall be set and filled. All flooring shall fit tightly, without gaps. Replacement flooring or damaged flooring which requires touch-up refinishing shall be finished as part of the job at no additional cost to the Government.

2 Refinishing. All flooring repairs or replacements shall be completed as specified above. Shoe molding shall be removed prior to sanding; all damaged or deteriorated molding shall be replaced at no additional cost. Floors shall be sanded and cleaned to remove all wax, varnish, dirt, and dust, leaving a smooth uniform surface

(d) Carpet. Carpeting shall be stretched and repaired as required to match existing carpeting.

(e) Concrete Floors. Cracked, broken, or spalled areas shall be patched with a non-shrinking cement mortar. Areas shall be cleaned and all loose concrete removed. Underlying surfaces shall be chipped to ensure bond with the patch. Shallow spalled areas shall be chipped to provide space for an adequate patch thickness. The patch shall be finished even with the adjacent surfaces and finished to match existing texture.

(f) Vinyl Baseboards. Deteriorated or damaged sections of vinyl baseboard shall be removed. Wall and floor surfaces shall be cleaned of all dirt, oil, grease, mildew, moisture, adhesive, and debris. Loose baseboards shall be resecured to the wall and damaged, deteriorated, or missing baseboard sections shall be replaced with an adhesive that conforms to manufacturer recommendations.

(g) Wooden Baseboards. Loose wooden baseboards shall be re-secured to the wall and deteriorated/rotted sections replaced. All repairs and

replacements shall be sanded smooth, primed and painted to match existing walls. When floors settle and leave a gap, quarter round shall be nailed to the baseboard to cover the area. If the gap is greater than ½ inch, the baseboard shall be removed and mounted lower. Nail holes shall be repaired with spackle and the wall sanded smooth, primed and painted.

(h) Ceramic Tile. Ceramic tile floors that are broken, missing, cracked, or discolored shall be replaced as required. Floor tiles shall be re-grouted, as required, to provide a waterproof seal. When replacement tiles of an exact match cannot be found, the Contractor may be required to remove and replace flawless tiles to create a pattern and minimize the visual effect of the mismatch.

(i) Terrazzo Floors. Cracks in terrazzo floors shall be cleaned and filled with resinous binder and marble dust or pigment, and sealed to match the existing floor. Spalled or broken areas shall be patched by removing deteriorated or damaged flooring, replacing with marble chips and binder, curing, polishing, and sealing to match the existing floor. Broken, deteriorated, or missing divider strips shall be replaced to match existing. All work shall be accomplished in accordance with the National Terrazzo and Mosaic Association, Inc. technical bulletins.

(2) Interior Walls, Ceilings, and Trim. Damaged and deteriorated walls, ceilings, and related trim shall be repaired or replaced to provide an attractive surface which is free of noticeable cracks, spalls, raised areas, holes and dents, and marks and stains. Wood trim items and ceiling fixtures shall be removed as necessary to provide access to the damaged area. Upon completion of the repair activity, fixtures and trim shall be reinstalled, nails set and filled, and items repainted or refinished to restore them to their original condition. When removing wall or ceiling coverings, the Contractor shall inspect the supporting structural system and notify the COR immediately of any need for repair before proceeding.

(a) Drywall. Small dents and holes shall be repaired with spackle over a backing plate when necessary. Spackle shall be feathered on the adjacent surfaces. Holes and other defects in wallboard between two studs or beams shall be repaired by removing a rectangle of gypsum board to the center of the adjoining studs or beams. Replacement gypsum board shall be of the same thickness and texture as the adjacent sheets.

(b) Vinyl Wall Covering. Wall covering that has been ripped, scarred, stained, or otherwise damaged shall be repaired or replaced as necessary. Wall covering shall be repaired if the damaged area can be patched and not be noticeable. The patch shall be inlayed by cutting through a slightly oversized piece of matching wall covering which has been placed over the damaged area so that the pattern is continuous. Wall covering which is extensively damaged or for which a matching wall covering is not available shall be repaired by replacing the wall covering on the entire

wall. If matching wall covering is not available, the Contractor shall find a comparable substitute. The COR will approve all replacement wall coverings that do not match the existing wall covering. Replacement wall covering shall be hung according to manufacturer recommendations.

(c) Ceramic Tile. Ceramic tile walls and window stools and marble saddles that are broken, missing, cracked or discolored shall be replaced as required. Tiles shall be re-grouted as required to provide a waterproof seal. When replacement tiles of an exact match cannot be found, the Contractor may be required to remove and replace flawless tiles to create a pattern and minimize the visual effect of the mismatch.

(d) Suspended Ceilings. Broken and stained ceiling tiles shall be replaced with tiles of the same material, style, size, and color. A damaged or broken suspended grid system shall be repaired or replaced as necessary to provide a suspended ceiling system as designed. The bid prices for indefinite quantity unit priced tasks for acoustical ceiling tile replacement shall include all costs for removal, disposal, and installation of acoustical ceiling tiles.

(3) Doors. Interior doors shall be maintained/repaired to operate smoothly without binding or sticking. Damaged, deteriorated, or missing doors and associated hardware shall be repaired or replaced as required. The replaced doors shall be the same type and have the same finish as the original doors. Scarred areas of doors shall be sanded, sealed and finished to match the surrounding door surface. All replacement doors shall be installed with the hardware from the damaged door unless the hardware is not repairable. Small holes in door faces shall be filled and finished to match surrounding door surface. Doors shall be planed (to include appropriate bevel) to provide a minimum 1/16-inch clearance after painting between door and adjoining head and jambs. The bottom of the door shall be trimmed to provide adequate clearance above the floor. Doors out of alignment with the doorframe shall be adjusted and screws tightened so the door fits squarely in the frame and operates freely.

(4) Stairs and Stairwells. The Contractor shall secure loose treads, risers, stringers, handrails, brackets, and other components. Badly damaged stair and handrail components shall be repaired/refinished to match original components. Trim items susceptible to damage during the repair activity shall be removed and reinstalled upon completion of the repair activity.

(5) Traverse/Curtain Rods. Sagging and/or nonfunctioning rods shall be restored to an operating condition, if possible. If beyond repair, rods shall be replaced. Loose brackets shall be secured. Broken cords shall be replaced. Broken or missing drapery slides shall be replaced. Rods shall be level and parallel with the ceiling. Additional support brackets shall be installed to support sagging rods.

(6) Venetian Blinds and Window Shades. Venetian blinds and window shades shall be restored to a smooth operating condition. Cracked, damaged, or rusted slats shall be replaced. Broken or worn cords and soiled/worn tapes shall be replaced. Loose or missing brackets and supports shall be secured or replaced. Damaged or deteriorated hardware shall be replaced or reworked to operating condition. Damaged rails and torn fabric shall be repaired. If beyond economical repair (as determined by the KO) or missing, Venetian blinds and window shades shall be replaced. Venetian blind and shade replacement are included in the firm fixed-price portion of the contract.

(7) Cabinets and Countertops. Damaged or deteriorated cabinets, shelving, and countertops shall be repaired or replaced as required. Missing or inoperative hardware shall be replaced. Countertops shall be free of warped, chipped, burned, cut, or otherwise marred areas. Replacement cabinets and countertops shall conform to the requirements of American National Standards Institute (ANSI) publication A161.1. All work is included in the firm fixed-price portion of the contract. When painting or varnishing of repaired/replaced cabinets is required, all cabinets in the room shall be painted/varnished if required to make a satisfactory match.

(8) Interior Accessories. The Contractor shall repair or replace damaged, inoperative, or missing interior accessories including, but not limited to paper holders, soap trays, dispensers, towel bars, shower curtain rods, medicine cabinets, mirrors, smoke detectors, and doorstops. Loose accessories shall be re-secured by tightening or replacing screws or by using a suitable adhesive. Damaged or missing items shall be replaced with items matching the original. Replacement hardware shall conform to the Builders Hardware Manufacturers Association (BHMA) Product Standard. Hardware items requiring lubrication shall be lubricated and restored to an operable condition. Repairable rusted metal components shall be cleaned of all rust, coated with a rust inhibitor, and restored to an operational condition.

b. General Exterior Work

(1) Exterior Walls. Damaged or deteriorated wall areas shall be repaired or replaced to restore to a serviceable, structurally sound, and watertight condition. This work includes, but is not limited to, replacing damaged masonry units, tuck-pointing loose or eroded mortar joints, sealing penetrations in wall openings; replacing damaged or deteriorated structural members, siding, underlayment, and exterior trim; replacing miscellaneous hardware items; and removal of vegetation, discoloration, graffiti, or other defects which will render an unsightly appearance to exterior walls.

(a) Masonry. Damaged masonry units (brick or concrete block) shall be replaced with a unit of the same size, color, and texture. The mortar shall be completely removed, the cavity cleaned, and all debris removed. The masonry unit shall then be reseated in mortar and the remaining cavity packed with mortar. All joints between masonry units shall be pointed to match existing. Damaged mortar joints shall be

chipped out, cleaned and dampened before being repointed. Repointed joints shall match undamaged joints.

(b) Hardboard Siding. Damaged hardboard siding shall be removed without damaging adjacent siding or underlayment. All joints shall be located on studs and the replacement siding shall be nailed at each stud. Replacement siding shall match the existing siding in color, texture, and material. Siding face and edges shall be factory primed and the back shall be factory sealed. Nails shall be of the type and size specified by the manufacturer and shall be driven flush. A 1/16-inch space shall be left between the siding and trim. All joints shall be caulked.

(c) Seams. Seams between window or door frames and exterior walls shall be caulked. Old joints shall be scraped and cleaned with a solvent recommended by the caulking manufacturer. The caulking shall be applied according to manufacturer directions.

(d) Metal Flashing and Trim. These items shall be a minimum of 26 gauge galvanized steel or 0.025 inch aluminum, whichever type material matches the existing.

(2) Exterior Trim. Exterior trim, including all exterior moldings, millwork, shutters, and cornice shall be repaired or replaced as required. Surfaces to receive trim shall be thoroughly cleaned of sealant and paint build-up prior to installation of trim. Damaged or deteriorated insulation board or underlayment shall be replaced with material of the same type, thickness, and quality. Bird screens and soffit vents shall be intact and free of corrosion and missing pieces. All wood trim items shall be prime painted prior to installation.

(3) Roofing. Damaged, deteriorated, or missing roofing, sheathing, flashing, gravel stops, miscellaneous roof structures and components, and structural supports shall be repaired or replaced as required to provide a watertight seal and to retain the original whole condition of the roof system. The bid prices for indefinite quantity unit priced tasks for roofing replacement shall include all costs for removal and disposal; roof deck surface preparation; and installation of underlayment and roofing.

(a) Structural Members. All trusses, joists, and other structural roof members shall be repaired or replaced as required to ensure the structure is safe for occupancy and structurally sound. While making repairs, the Contractor shall inspect other supporting members and report deficiencies to the KO.

(b) Shingle Roofing. Damaged and deteriorated shingles shall be removed without damaging those in the unaffected areas. Damaged underlayments shall be cut and removed leaving approximately eight inches of sound material exposed surrounding the repair area. New underlayment and shingles shall be installed in

accordance with standard industrial practices. Vents and other projections through roofs shall be flashed as specified below.

(c) Built-Up Roofing. Surfacing material shall be removed to a distance of at least 2½ feet beyond the area of disintegrated felts. The disintegrated felt layers shall be removed and replaced with new 15 pound bituminous saturated felts of approximately the same size, which will be mopped into place with hot bitumen. At least two additional layers of 15 pound saturated felt shall be applied. The edges of the first ply shall extend nine inches beyond the area of disintegrated felts, the second ply 18 inches, and each layer mopped on with hot bitumen. Hot bitumen shall be applied to the repair area at a rate of 60 pounds per square for coal-tar pitch and into it, while hot, clean gravel embedded at a rate of 400 pounds per square, or slate embedded at a rate of 300 pounds per square. Repair of smooth-surfaced built-up roofs shall be accomplished in the same manner, except for the removal and replacement of the aggregate surfacing, and only asphalt bitumen shall be used.

(d) Elastomeric Sheet Roofing. Deteriorated and damaged elastomeric (EPDM) sheet roofing shall be removed at least 12 inches into sound roofing. Damaged underlayment shall be cut and removed leaving approximately eight inches of sound material exposed surrounding the exposed area. New underlayment shall be installed in accordance with standard industrial practices. Install EDPM in accordance with the manufacturer's application instructions, using recommended lapping methods and adhesives. Vents and other projections through roofs shall be flashed as specified below.

(e) Roof Flashing. Existing flashing shall be rehabilitated to form an effective water seal. Areas covered with deteriorated bituminous cement shall be cleaned of all loose materials and debris and recoated with cement. Deteriorated mortar joints in chimneys intended to seal and anchor flashing shall be cleared of mortar to a minimum depth of 1½ inches and the flashing reinserted and the joint filled with mortar patch and finished to match existing joints. Damaged flashing around vent pipes, attic turbines and other mechanical openings shall be replaced with appropriately formed flashing of either 0.032 inch aluminum or 24 gauge galvanized steel. Shingles around penetrations shall be removed without damaging adjacent roofing or underlayment. The flashing shall be securely nailed along one edge into the roof sheathing or roof support. Bituminous plastic cement shall be applied over the nail heads and the flashing edges. The roofing shall be properly replaced and all nail heads and the joint between the flashing and the vent shall be coated with bituminous plastic cement. Flashing around mechanical equipment, chimneys, and other large protrusions shall provide an effective water seal.

(f) Miscellaneous Roof Structures and Components. Chimneys, vent stacks, roof ventilators, and other items piercing the roof shall be repaired or replaced so as to function as originally intended and designed.

(4) Gutters and Downspouts. Clogged gutters and downspouts shall be cleaned out. Broken, damaged, misaligned, or leaking gutters and downspouts shall be repaired or replaced with new material to match original as to gauge, type of material and finish. Loose hangers and fasteners shall be tightened. Missing or broken wire guards, hangers and fasteners for gutters and downspouts, and splash blocks shall be replaced. Splash blocks shall be properly positioned to receive the impact of drainage water.

(5) Exterior Concrete and Masonry Structures. Exterior concrete (Portland cement and asphaltic) surfaced areas such as patios, sidewalks, and steps shall be repaired so they are structurally sound, at original alignment and grade, and are free of damage and major cracks. Roots that cause or contribute to concrete damage shall be removed and the area backfilled. Masonry fences, planters, and steps shall be repaired to replace missing or broken masonry units. Deteriorated mortar parts, gaps, breaks, and loose components shall be repaired.

(6) Exterior Accessories. Damaged, deteriorated, or missing building numbers, exhaust fan vent caps, chimney caps, and other miscellaneous components and hardware shall be installed, repaired, or replaced as required.

(7) Stairs. Damaged or deteriorated stairs and stairways, including treads, risers, nosing's, stringers, brackets, balustrades, handrails, and other components shall be repaired or replaced as required.

(8) Doors, Windows, and Screens. Doors (including storm doors), windows (including storm windows), and screens shall operate smoothly without binding or sticking in accordance with the manufacturer's design. Damaged, deteriorated, or missing doors, windows, and screens, and associated components shall be repaired or replaced as required. Caulking, glazing, and weather stripping shall be fully intact to maintain a completely weather tight seal. Replacement glass shall be of the same size, type, and quality as the existing glass. Safety glass shall be provided where required by building codes regardless of the existing type of glass.

(a) Doors. Damaged, deteriorated, warped, swollen, and sagging doors shall be repaired/replaced with doors of the same type and size. Exterior doors shall be installed during the same workday as removal of original door. Scarred areas of doors shall be sanded, wiped clean with a low toxicity solvent, sealed, and finished to match the surrounding door surface. All replacement doors shall be installed with hardware from the damaged doors unless the hardware is unrepairable. Cracked and broken glass in doors shall be replaced with the same quality, type, and size. Small holes in

door faces shall be filled and finished to match surrounding door surface. Doors shall be planed (to include appropriate bevel) to provide a minimum 1/16-inch clearance after painting between door and adjoining head and jambs. The bottom of the door shall be trimmed to provide adequate clearance above the floor. Doors out of alignment with the doorframe shall be adjusted and screws tightened so the door fits squarely in the frame and operates freely.

(b) Sliding Doors. Damaged or deteriorated metal and wooden sliding doors and related hardware shall be repaired or replaced with doors and related hardware of the same type, size, and color. All runners, guides, rollers, pulleys, and weights shall be properly aligned and lubricated to ensure smooth operation in opening and closing.

(c) Screens and Screen Doors. Oxidation deposits shall be removed from metal parts. The affected area shall be cleaned and protective coating of paste wax shall be applied. Replacement screening shall be of the same material as existing screening. Small holes (less than 4 in^2) in screens may be repaired with a patch matching the existing screening. The free end wires of patches shall be bent around screen to secure patch in position. Exposed screening ends shall be cemented with a colorless plastic cement. No exposed screening ends shall protrude from the screen. Warped screen doors and frames shall be straightened if possible to fit squarely in opening. If beyond repair, warped items shall be replaced.

(d) Hardware. Damaged, inoperable, or missing hardware such as hinges, locks, striker plates, latches, keepers, window operating mechanisms, door closures, springs, etc. shall be adjusted, repaired, or replaced as required. Replacement hardware shall match existing hardware in type, size, quality, and finish and meet the Building Hardware Manufacturers Association (BHMA) Product Standards. Hardware shall be installed in accordance with the manufacturer's recommendations.

(e) Overhead or Rolling doors. Railings shall be checked for alignments. Rusted or corroded areas shall be repaired or replaced. All bearings, rollers, gears, and pulleys shall be properly lubricated. All hangers, bolts, springs, and pins shall be free of rust and corrosion and appropriately lubricated. Cables and fusible links shall be properly installed and free from corrosion and rust.

c. Miscellaneous Work

(1) Miscellaneous Buildings and Structures. The Contractor shall perform maintenance and repair on miscellaneous buildings and structures such as grandstands, bleachers, guard and watchtowers, picnic and bus stop shelters, grease and elevated garbage racks, flagpoles, monuments, playground equipment, and other miscellaneous structures listed in Attachment D.

(2) Signs

(a) The Contractor shall furnish/fabricate and install a variety of signs including identifying plates, warning signs, directory signs, and general signs on sheet metal, aluminum, and wood using paint or baked on reflective products.

(b) The Contractor shall furnish/fabricate and install all types of traffic control signs. All materials used shall conform to the Manual on Uniform Traffic Control Devices as issued by the U.S. Department of Transportation.

F. PAINTING Painting shall include both the interior and exterior of all types of surfaces on buildings and miscellaneous structures, as well as the painting of other miscellaneous items such as signs, guard posts and rails, parking bumpers, etc. Interior and exterior painting performed in conjunction with repair or replacement work is considered incidental to and part of the repair/replacement, and shall be provided at no additional cost to the Government.

a. Touch-up Painting. Touch-up painting shall consist of correcting and painting minor defects in interior and exterior surfaces (i.e., filling and painting of nail holes, nicks, and scrapes; painting over graffiti, marks, and scuffs;, etc.) and painting of walls, ceilings, and other surfaces up to 200 square feet per occurrence. Touch-up painting will be performed on a service call basis. Color of touch-up paint will match existing.

b. Certificates of Compliance. Certificates of compliance from the manufacturer shall be submitted for all paint types

c. Protection of Areas. All furnishings, equipment, floor coverings, and other surfaces that are not to be painted shall be carefully moved, covered, or otherwise protected prior to painting. Items such as hardware, hardware accessories, machined surfaces, blinds, curtains, plates, light fixtures, and similar items in contact with painted surfaces shall be removed, masked, or otherwise protected prior to surface preparation. After painting, the Contractor shall remove paint, both old and new, from surfaces not to be painted and restore to original condition. All removed items shall be reinstalled and furnishings and other property returned to its original position. Painted items such as windows, doors, and cabinets shall operate smoothly without binding. The Contractor shall be responsible for the cost of repairing any damage caused to Government or personal property.

d. Surface Preparation. Surfaces to be painted shall be cleaned to remove all dirt, dust, rust, scale, splinters, mildew, chalked paint, loose particles, disintegrated coatings, grease, oil, and other deleterious substances. Sanding, wire brushing, washing, and chemical treatments shall be used as necessary to properly prepare the surface for painting. Water shall not be used on unpainted wood. Nails, screws, picture hangars, plant hangars, and similar items shall be removed. All scratches, nicks, cracks, gouges,

spalls, alligatoring, and irregularities due to partial peeling of previous paint shall be repaired, sanded, spackled, caulked, or otherwise treated to render such defects practically imperceptible. Caulking and other compounds shall be allowed to cure for the times stated in the manufacturer's literature prior to painting. Existing enamel and other glossy surfaces shall be sanded. All new work, surfaces bared by surface preparation, and exposed nails and other ferrous metals shall be primed.

e. Airless Sprayers. Application of paint by airless spray shall be accomplished only by firms and persons experienced in the use of this type of equipment. At least 15 calendar days prior to paint application, the Contractor shall submit data for approval by the COR that demonstrates the proposed applicators have successfully applied paint with airless spray equipment. The data shall include the names and locations of at least two sites where the proposed applicators have used the airless spray method for applying paint. The Contractor shall indicate the type and design of the airless spray equipment and certify that this method of applying paint has been performed satisfactorily.

f. Workmanship. Paint shall be carefully applied with good, clean brushes, rollers, or approved airless spray equipment to provide smooth finished surfaces free from runs, drops, ridges, waves, laps, brush marks, variations in color, or other defects. Allow time between coats, as recommended by the coating manufacturer, to permit thorough drying. Each coat shall be of sufficient thickness to completely cover the preceding coat or surface, and there shall be a visually perceptible difference in shades of successive coats.

G. PLUMBING. Plumbing work shall include maintenance and repair of the plumbing systems and fixtures of each building. When repaired, plumbing systems and fixtures shall be free flowing, in good, safe operating condition, free of leaks and drips. Domestic water lines shall be maintained from and include the service cut-off box or five feet beyond the outside of the building to and including any tap or plumbing fixture. Waste and sewage lines (including all lines six inches in diameter and smaller) shall be maintained from a point five feet beyond the outside of the building to and including any drain or plumbing fixture. Natural and propane gas lines shall be maintained from and including the cut-off valve at the pressure regulator and/or storage tank to and including the appliance, heater, or water heater connection. All work shall meet the workmanship and material requirements of ANSI A40.8, *National Plumbing Code*.

a. Cleanup/Restoration. The Contractor shall mop up, vacuum, or otherwise remove water resulting from overflowing fixtures, leaks, clogged drains, etc. as part of the repair. Surfaces and areas exposed to wastewater shall be disinfected. Walls, ceilings, and other structures, paved areas such as sidewalks and roads, grassed areas, etc. which are damaged by and/or removed to gain access to leaks, clogs, or other defects shall be restored by the Contractor to original condition.

b. Plumbing Fixtures. All sinks, tubs, toilets, urinals, basins, and faucets, lavatories, showers, drain lines, etc shall be free of leaks and drips, operate properly, drain freely, and be free of cracks and discoloration. All fixtures and components thereof that cannot be repaired shall be replaced with fixtures that are in strict compliance with *BOCA National Plumbing Code*.

c. Water Heaters. Water heaters shall be repaired or replaced as required to provide hot water of at least 140^{o}F without leaks. Controls, control devices, and safety devices shall operate safely and properly. Water heater insulation jackets with 5.0 fiberglass insulation shall be installed on all replacement water heaters and/or existing units when excessively worn, damaged, or missing.

d. Drinking Fountains. The Contractor shall maintain, repair, and replace all drinking fountains and their component parts. Fountains shall be free of leaks and shall operate in accordance with manufacturer design specifications. All damaged and worn component parts shall be replaced. Replacement fountains or component parts shall be equal to or better in quality, size, and capacity to that being replaced. Fountains shall be firmly secured to support structures, and free of movement and vibration.

H. ELECTRICAL WORK Electrical work shall include maintenance and repair of electrical systems up to 600 volts and lighting fixtures for each building beginning at and including the weatherhead, or in the case of underground power, at and including the main distribution panel. All electrical equipment, service connections, distribution panels, connections, grounds, outlets, switches, wiring, branch circuits, ground fault circuits, lighting fixtures, and photo cells shall be repaired or replaced as required so as to operate as originally intended and designed, and in a safe manner. Cracked, broken, or missing receptacle and switch faceplates shall be replaced with new plates of the same/original color and size. Light fixture lenses and globes that are damaged or missing shall be replaced. All exterior lighting in hallways and stairways shall also be repaired/replaced, including light bulb replacement. Maintenance of lamps, appliances, and cords owned by individuals is not the responsibility of the Contractor. All workmanship and materials shall conform to the National Fire Protection Association (NFPA) 70 National Electrical Code.

b. Telephone Wiring. Damaged/deteriorated telephone wiring shall be repaired/replaced from the demarcation point established by the telephone company throughout the structure to, and including, telephone jacks. Cracked, missing, or inoperative plug-in or screw connected telephone jacks shall be replaced.

I. LOCKSMITHING. Locksmith work shall include, but not be limited to, the repair of key locksets; the fabrication and replication of keys; opening of key locksets; and the installation, maintenance, repair, replacement, removal, opening, and resetting of mechanical and electronic combinations of cipher locks. The Contractor shall unlock buildings, safes, and vaults (with or without combination or key) to gain access when

authorized; and improve, alter, and adapt locking devices and systems. The Contractor shall maintain key inventories and records, and establish and maintain a master key system for each building as well as duplicate keys for each master key system. Locksmith personnel shall meet the requirements of the Base Security Department and be bonded and certified by the State of Maryland. The COR will determine the type and series of locks for replacement or installation. Where required by the KO, locksets, deadbolts, pad locks, and others shall be keyed and master keyed.

J. HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION EQUIPMENT (HVAC&R). The Contractor shall provide maintenance, repair, and minor construction services for a variety of HVAC&R units (to include heating systems up to 750,000 Btu/hr, and air conditioning and refrigeration equipment up to 25 tons) and their components. This work includes the maintenance, repair, and installation of all components, devices, equipment and associated systems, including but not limited to, compressors, blowers, motors, drive assemblies, fans, service valves, dampers, condensers, cooling coils, piping, pumps, purge units, control systems and wiring, duct work, burner assemblies, combustion chambers, thermostats and temperature controls, registers, condensate and drip pans and drains, grills, evaporators, air filters, heat/air conditioning units, and all other items of equipment essential to the proper operation of HVAC&R equipment and systems in accordance with the manufacturer's manuals

K. SECURITY FENCES AND WIRE CAGES. The Contractor shall provide maintenance/repair of security fences and cages to ensure all exterior and interior fences and security cages are kept in good repair, and unauthorized entry is not permitted. All gates shall be maintained secure, and all hinges and locking devices kept in good working order. Repairs required include, but are not limited to, the following: repairing holes in chain link fence and wire cages, stringing of barbed wire on top of fence, replacing or resetting of fence support stanchions, replacing or repairing hinges and locking devices, and removal of rust and the painting of fences.

L. MACHINE, WELDING, AND METAL WORKING. The Contractor shall provide maintenance/repair of metal components, installed equipment such as exhaust fans, and shall construct and install metal components in support of other repair activities as required.

a. Metal Working. Metal working shall include heating and bending to form metal shapes, drilling, torch cutting, hammer forging, grinding, sawing, and fitting of metal parts. The Contractor shall perform metal working requirements to maintain/repair or fabricate and replace metal components and installed equipment, including the construction and installation of metal components in support of other maintenance activities.

b. Welding. The Contractor shall perform all types of welding and brazing in the accomplishment of maintenance/repair of buildings, structures, and appurtenances.

Welding shall be performed on light, heavy gauge and hardened metals using flat, vertical, horizontal, and overhead positions. Processes include preheating, brazing, bead welding, tack welding, flame cutting, pressure welding and heat treating. Welding, burning and open flame work will be permitted, but only subject to the following conditions: the method must be approved by the COR, the Contractor shall inform the COR prior to any work of this nature being performed, the Contractor shall provide an adequate fire watch and the required fire extinguishing equipment. All Contractor welders shall be certified for the specific welding process in accordance with applicable American Society of Mechanical Engineers (ASME), ANSI, and American Welding Society (AWS) standards.

c. Machinist Tasks. The Contractor shall perform machinist tasks such as drilling, tapping, boring, reaming, and grinding a variety of materials such as steel, cast iron, stainless steel, aluminum, copper, brass, bearing bronze, manganese, babbitt, etc. The Contractor shall install equipment requiring critical alignment of motors, pumps, blowers, gear reducers, etc.

d. Disposal. Debris, rubbish, hazardous waste and nonusable material resulting from the work under this contract shall be disposed of by the Contractor at his expense off Government property. Hazardous wastes must be disposed of in accordance with the Resource Conservation and Recovery Act and all other applicable federal, state and local laws and regulations.

e. Safety Requirements and Reports

(1) Prior to commencing work, the Contractor shall meet in conference with the KO to discuss and develop mutual understandings relative to administration of the Safety Program.

(2) The Contractor's work space may be inspected periodically for OSHA and Navy violations. Abatement of violations will be the responsibility of the Contractor and/or the Government as determined by the KO. The Contractor shall provide assistance to the Safety Office escort and the federal or state OSHA inspector if a complaint is filed. Any fines levied on the Contractor by federal or state OSHA offices due to safety/health violations shall be paid promptly.

(3) The Contractor shall report to the KO, in the manner and on the forms prescribed by the Government, exposure data and all accidents resulting in death, trauma, or occupational disease. All accidents must be reported to the KO within 24 hours of their occurrence.

(4) The Contractor shall submit to the KO a full report of damage to Government property and/or equipment by contractor employees. All damage reports shall be submitted to the KO within 24 hours of the occurrence.

APPENDIX D – GROUNDS MAINTENANCE

APPENDIX D – Grounds Maintenance

Definitions

a. Debris. Debris includes, but is not limited to, paper, cans, bottles, limbs and branches, pine straw and pine cones, leaves, rocks, and other similar items.

b. Diameter at Breast Height (DBH). Diameter at breast height, as measured 4.5 feet above ground level.

c. Environmental Protection Agency (EPA). That federal agency delegated authority to enforce the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

d. Fertilization. Fertilization is the process of applying nutrient elements to the soil where the soil has become deficient in nutrients essential for proper plant growth.

e. Grass Cutting. Grass cutting shall include cutting and trimming, within the designated area, all grasses, weeds, and other vegetation which is one inch or less in diameter (at ground level).

f. Parcel. A given area of land. Each area shown on maps accompanying this specification is divided into various parcels.

g. Pruning. Pruning is selectively removing unwanted growth to make a plant or tree grow or respond in a desired manner. Pruning differs from "shearing". Pruning involves selection and judgment. "Shearing" means clipping all growth on a plant at a uniform distance and shape.

Herbicidal Vegetation Control

a. The Contractor shall be licensed by the applicable state agency to provide herbicidal vegetation control.

b. All herbicide application shall be done in accordance with federal, state, local, and installation laws and regulations.

c. Only herbicides registered by the Environmental Protection Agency and applicable state lead agency for the use intended will be considered

d. Any proposed changes in approved herbicide usage shall be submitted for the KO’s approval at least five working days in advance of the anticipated need

e. Labels and material safety data sheets shall be submitted for the KO’s approval for each herbicide intended to be used within 30 calendar days after award of the contract.

f. Use shall be in strict compliance with label directions for the control of the target weeds.

e. Extreme care shall be exercised to avoid entry of herbicides into drainage structures, streams, ditches, etc.

g. The Contractor shall maintain daily records of all herbicide usage on NAVFAC Form 6250/3.

h. This form shall be filled out daily as weed control operations are performed, and all entries must be completed within 24 hours of chemical usage.

i. Completed forms shall be made available upon request for inspection

j. The completed forms shall be forwarded to the COR on a monthly, following the month of operation.

k. Forms which are rejected by the COR due to improper preparation shall be corrected and resubmitted by the Contractor.

l. All tanks, hoses, pumps, control valves, and gauges shall;

1. be free of visible deterioration

2. not leak

3. operate at the manufacturer's recommended rates and pressures.

m. All failed equipment shall be replaced and/or repaired by the Contractor prior to resuming operations.

n. All work involving the handling and/or use of herbicides shall be by a certified applicator, or under the line of sight supervision of a certified individual who is in direct communication with the applicator.

1. The certified supervisor shall be readily accessible for consultation with the COR at all times during herbicide operations.

2 Uncertified personnel who apply herbicides shall have been employed in weed control for a minimum of 30 days and have received training in:

(a) Selection, application, and evaluation of appropriate control procedures.

(b) Safe and effective application techniques, and the calibration and use of all equipment required.

(c) Handling, storage, and transfer of herbicide materials as required.

(d) Reading, interpreting, and following herbicide label instructions.

(e) Use and maintenance of all required safety equipment.

(f) The consequences of preparing a herbicide to be given or sold to an individual other than an authorized employee of the Contractor or regulatory official.

(g) Procedure for handling herbicide spills, including reporting procedures.

(h) The security of vehicles and equipment.

0. Herbicide Use Records. The Contractor shall maintain daily records of all herbicide usage on NAVFAC Form 6250/3.

1. This form shall be filled out daily as weed control operations are performed, and all entries must be completed within 24 hours of chemical usage. Completed forms shall be made available upon request for inspection, and shall be forwarded to the COR monthly.

APPENDIX E – CUSTODIAL SERVICES

APPENDIX E **– Custodial Services**

Definitions

Designated spaces include, but are not limited to, halls, restrooms, offices, work areas, entranceways, lobbies, storage areas, elevators, and stairways.

a. Clean Free of dirt, dust, spots, streaks, stains, smudges, litter, debris, and other residue.

b. Disinfect To cleanse of harmful microorganisms by application of an approved chemical agent.

c. Facility A building, structure, or piece of equipment designed and created to serve a particular function.

d. Frequency of Service

(1) Annual (A) Services performed once during each 12-month period of the contract.

(2) Semiannual (SA) Services performed twice during each 12-month period of the contract.

(3) Quarterly (Q) Services performed four times during each 12-month period of the contract.

(4) Monthly (M) Services performed 12 times during each 12-month period of the contract.

(5) Semimonthly (SM) Services performed 24 times during each 12-month period of the contract.

(6) Weekly (W). Services performed 52 times during each 12-month period of the contract.

(7) Twice weekly (2W). Services performed twice a week, such as Monday and Thursday or Tuesday and Friday.

(8) Three times weekly (3W). Services performed three times a week, such as Monday, Wednesday, and Friday.

(9) Daily (D5). Services performed once each calendar day, Monday through Friday, including holidays unless otherwise noted.

(10) Daily (D7). Services performed once each calendar day, seven days per week, including weekends and holidays.

e. Relamping A systematic approach to inspecting each building for burned out and/or blinking fluorescent tubes and incandescent bulbs.

f. Space An area to receive custodial services which may or may not be considered a room by common definition, e.g., definable sections of hallways, stairwells, lobbies, offices, entrances, and elevators.

g. Waste Containers Trash receptacles, wastebaskets, trashcans, wastepaper baskets, or any container holding trash, paper, or refuse of any type.

h. Space Cleaning. Space cleaning consists of the following services each time a space is cleaned.

(a) Sweeping/Dust Mopping. Concrete/quarry tile, terrazzo, wood, and resilient flooring shall be swept or dust mopped to remove all loose dirt, dust, and debris.

(b) Vacuuming Carpets and Rugs. Carpeted areas and rugs to be vacuumed free of all loose soil and debris.

(c) Emptying Waste Containers. All waste containers are to be emptied and plastic liners replaced. Any plastic liner that is soiled or leaking is to be replaced with a new plastic liner. Waste containers are to be washed twice monthly inside and outside using a disinfectant and are to be free of odors. After washing, containers are to be wiped dry and new plastic liners installed. Boxes, cans, bottles, and other items placed adjacent to waste containers and marked "TRASH" are also to be removed and disposed of. All waste collected is be disposed of in the nearest outside trash collection point. Waste that falls on the floor and outside grounds during the waste removal process is to be picked up and disposed of.

(d) Low Dusting/Cleaning. All furniture, partitions, radiators, equipment, hand railings in stairways, grills, horizontal ledges, and sills are to be dusted. Walls, doors, and partitions are to be

wiped clean (including glass in partitions and doors) to a height of 7'-0" above floor level. If present, chalkboards, chalk trays, and erasers are to be cleaned. Corridor, lobby, and entrance walls and doors are to be cleaned. Miscellaneous hardware and bright metal work are to be wiped clean. Drinking fountains are to be cleaned and disinfected; all surfaces are to be free of stains, smudges, and scale.

(e) Cleaning Walk-off Mats. Each time floors are swept/dust mopped or vacuumed, walk-off mats in that area are to be cleaned. Soil and moisture underneath mats shall be removed and the floor cleaned as appropriate along with the rest of the floor. Mats are to be returned to their original locations afterward.

j. Floor Care. Floor care is to consist of the following services;

(a) Damp Mopping. Prior to damp mopping, floors are to be swept/dust mopped. Floors are to be damp mopped with an approved cleaning solution to remove dirt, streaks, smears, and stains.

(b) Spray Cleaning and Buffing. Prior to spray cleaning and buffing, floors are to be damp mopped as specified above. Floors are to be spray cleaned and buffed to remove traffic marks, heavy soil, etc. A blend of detergents and polymers to emulsify surface soil and repair traffic areas are to be used. If buffing produces loose residue, it is to be removed in a manner that will leave the floor clean without destroying the high gloss produced by buffing. When cleaning and buffing is completed, the floor is to have a uniform, high-gloss finish from wall to wall, including corners, free of scuff and heel marks.

(c) Waxing and Buffing. In the event spray cleaning and buffing is not sufficient to maintain a uniform, high-gloss finish, floors are to be completely waxed and buffed using a liquid wax system containing not less than 18% solids. Floors are to be damp mopped as specified above immediately prior to application of wax. Floors are to be buffed, if required, to a uniform gloss finish free from dirt, traffic marks, and stains.

APPENDIX E – CUSTODIAL SERVICES

k. Restroom Services. The following is to be performed each time restroom services are performed.

(a) Cleaning. Restroom fixtures, including water closets, urinals, lavatories, and sinks are to be washed inside and outside using a disinfectant, and are to be free of stains and odors. Pumice sticks and an approved toilet bowl cleaner are to be used to remove stains from urinals and water closets. Brushes, sponges, and cloths that have been used to clean any other part of the restroom (including water closets, urinals, walls, floors, and partitions) are not be used to clean lavatories or sinks. Floors are to be swept/dust mopped free of dirt, then mopped with a disinfectant. Floor drains are to be cleaned and flushed with a disinfectant. Wainscoting, partitions, walls, and doors are to be cleaned free of dirt, stains, and graffiti. Mirrors are to be cleaned and polished. All metal fixtures and hardware are to be cleaned. Waste containers are to be emptied, disinfected, and plastic liners replaced. If present, shower stall rooms and locker/dressing rooms are to be considered part of the restrooms, and cleaned accordingly.

(b) Servicing. Servicing restrooms includes inspecting, cleaning, and replenishing supply dispensers. Restroom supplies include, but are not limited to, paper towels, toilet tissue, and soap. The Contractor is to stock restrooms with sufficient supplies to insure they will last until the next scheduled service.

l. Other Services

(1) Policing Grounds. Paper, bottles, cans, and other trash and refuse are to be removed from all grounds, sidewalks, and interior courts. All removed items are to be deposited in the nearest waste container.

(2) Removing Snow and Ice. Snow and ice is to be removed from those building walks and entrances shown in Appendix B so that these areas are clean and safe for pedestrian traffic. A commercial snow/ice remover may be used as a methodology for maintaining areas snow- and ice-free. These are to remain clean and safe throughout normal working hours

(3) Cleaning Exterior Glass. The Contractor shall thoroughly clean all exterior glass surfaces, window frames, sills, and sashes, from the ground line up to and including the second floor. All glass surfaces shall be cleaned and left free of streaks and stains, and shall be wiped dry. All paint, putty, film, and foreign matter found on glass surfaces shall be removed. Where storm windows exist, exterior window cleaning shall include both sides of the storm window and the outside of the inner glass, and shall be counted as three separate surfaces for payment purposes.

(4) Cleaning Interior Glass. The Contractor shall thoroughly clean all interior glass surfaces, window frames, sills, and sashes. All glass surfaces shall be cleaned and left free of streaks and stains, and all adjacent surfaces wiped dry. All paint, putty, film, and foreign matter found on glass surfaces shall be removed.

(5) Cleaning Venetian Blinds. Venetian blinds, including mini-blinds, shall be removed and cleaned free of all dust and embedded dirt, and re-hung in working order. Once removed for cleaning, the blinds shall be re-hung by the Contractor within !INSERT NUMBER! working days.

m. Service Call Work. Service call work consists of providing labor and material to perform unscheduled custodial services that are brief in scope. Adequate procedures for receiving and responding to service calls during regular working hours are to be established.

(1) Clean Up. Service calls for cleaning are to be responded to within 1 hour during regular working hours. Once begun, the cleaning effort is to continue until completed.

(a). Calls include, but are not limited to, such items as:

1. Cleanup of overflowed restroom fixtures
2. Cleanup of spills
3. Cleaning muddy or wet entrances
4. Cleanup of broken glass

(2) Lighting. Service calls for replacing burned out or blinking fluorescent tubes and incandescent bulbs between scheduled relamping services.

APPENDIX E – CUSTODIAL SERVICES

CONTRACTOR FURNISHED ITEMS

1. Materials All materials furnished by the Contractor shall be of the type and quality used in large-scale commercial cleaning operations, meet the requirements specified herein, and be approved by the COR before use.

a. Toilet Supplies

(1) Soaps. Restrooms soaps shall conform to the following requirements.

(a) Powdered soap for dispenser use shall be mildly scented, free flowing, and non-caking per ASTM-D2958.

(b) Liquid soap for dispenser use shall be mildly scented, approximately 15% concentrate, and equivalent to one of the following brand names:

- Vestal
- Calgon
- Saniflush

(c) Toilet soap in cake form for hand use shall be white and mildly scented per ASTM-D499.

(2) Paper Towels and Toilet Tissue. Factory-reject type paper is prohibited for use by this contract. Paper towels and toilet tissue shall be delivered in unopened cartons and conform to the following requirements.

(a) Paper towels shall suit the existing paper towel dispensers; adapters, as required, shall be furnished by the Contractor at no additional cost to the Government. Folded paper towels shall conform to A-A-696. Paper towel rolls shall be commercial grade, highly absorbent, wet-strength

(b) Toilet tissue shall be commercial grade per ASTM-D3905. The approximate width of rolls shall be 4½ inches.

(3) Liquid Deodorizer. Liquid deodorizer shall be standard commercial type.

(4) Deodorants. Cake deodorants shall fit existing dispensers and meet the requirements of A-A-266.

(5) Disinfectant Germicidal. Disinfectant shall conform to A-A-1441.

b. Waste Container Liners. Liners shall be provided in various sizes to fit all waste containers.

c. Floor Wax. Floor wax shall be an acrylic, slip-resistant wax conforming to one of the following brand names or an approved equal.

- Johnson's Complete
- Carolina Reflections
- Cello-Brite

2. Equipment. All power-driven equipment for vacuuming, floor scrubbing, waxing, and polishing shall be of the industrial type, mechanically sound, safe to operate, and in a condition that will not harm or excessively wear existing finishes and floor coverings

SCHEDULE OF SERVICES

CUSTODIAL REQUIREMENTS	FREQUENCY[2]					REMARKS
	D5	3W	2W	W	M	
1. Space Cleaning			X			
2. Floor Care				X		
3. Restroom Services			X			
4. Relamping					X	
5. Policing Grounds				X		

Specific Requirements:

2W - Tuesday and Friday

W - Tuesday

M - First Wednesday

[1] Includes restrooms

[2] See paragraph C.3.h for service frequency codes

APPENDIX E – CUSTODIAL SERVICES

Frequency of Service

Annual (A). Services performed once during each 12-month period of the contract at intervals of 335 to 395 days.

Semiannual (SA). Services performed twice during each 12-month period of the contract at intervals of 160 to 200 calendar days.

Quarterly (Q). Services performed four times during each 12-month period of the contract at intervals of 80 to 100 calendar days.

Monthly (M). Services performed 12 times during each 12-month period of the contract at intervals of 28 to 31 calendar days.

Semimonthly (SM). Services performed 24 times during each 12-month period of the contract at intervals of 14 to 16 calendar days.

Weekly (W). Services performed 52 times during each 12-month period of the contract at intervals of six to eight calendar days.

Twice weekly (2W). Services performed twice a week, such as Monday and Thursday or Tuesday and Friday.

Three times weekly (3W). Services performed three times a week, such as Monday, Wednesday, and Friday.

Daily (D5). Services performed once each calendar day, Monday through Friday, including holidays unless otherwise noted.

Daily (D7). Services performed once each calendar day, seven days per week, including weekends and holidays.